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| Time Period | **Units of Study** | **Overview** |
| **First**  **Marking**  **Period**  **September to**  **Mid-November** | Simple and Complex/Compound Machines | Students will define science and identify its three branches. They will learn about models in science and will discuss its limitations. They will evaluate scientific explanations and learn about energy.  They will read about energy transformation and list the sources of energy and will come to understand the advantages and disadvantages of each energy sources. Lastly, they will differentiate work and power and will learn about using machines. They will compare and contrast simple machines and compound machines. |
| **Second**  **Marking**  **Period**  **Mid-November –**  **End of December** | The Atmosphere, Hydrosphere, and Lithosphere | Students will learn about matter and its three states. They will examine the behavior of fluids and will learn how temperature is related to kinetic energy. They will come to understand the Law of Conservation of energy and will explain the difference between thermal energy and heat.  They will identify the gases in Earth’s atmosphere and will describe what happens to the energy from the Sun. They will also learn about air movement.  Lastly, students will learn about weather and will list the different types of precipitation. They will recognize weather patterns and learn the basics of weather forecasting. |
| **Third**  **Marking**  **Period**  **January –**  **April** | Biodiversity | Students will compare and contrast living and nonliving things. They will learn how ancient scientists classified living things and will explain the system at binomial nomenclature. They will list the six kingdoms and demonstrate the use of dichotomous key.  They will identify names and functions of each part of a cell and explain the importance of a cell nucleus. They will explain how a virus makes copies of itself and will identify the benefits of vaccine.  Lastly, students will learn about Ecology, population sizes and how competition limits growth. They will describe how organisms obtain energy from life and will explain how organisms interact. |
| **Fourth**  **Marking**  **Period**  **May - June** | Interdependence | Students will identify common abiotic factors in most ecosystems and will list the components of air. They will learn about the important cycles of nature and its importance to life. They will learn about energy flow and will explain how organisms produce energy-rich compounds. They will explain how ecosystem change over time and describe how new communities begin in areas without life.  Students will state and explain the seven biomes on Earth and will explain how climate influences land environments. Lastly, they will discuss problems that affect aquatic ecosystem. |

**By the end of the First Marking Period, each student will be able to:**

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|  | Define science and identify its three main branches. |
|  | Identify some skills scientists use. |
|  | Describe various types of models. |
|  | Evaluate scientific explanations. |
|  | Distinguish between kinetic energy and potential energy. |
|  | Identify how energy changes form. |
|  | Explain what renewable, nonrenewable and alternative resources are. |
|  | Calculate how much work is done. |
|  | Explain how a machine makes work easier. |
|  | Calculate the mechanical advantages and efficiency of a machine. |
|  | Distinguish among the different simple machines. |

**By the end of the Second Marking Period, each student will be able to:**

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|  | Relate the three states of matter to the arrangement of particles within them. |
|  | Define and compare thermal energy and temperature. |
|  | Describe how pressure is transmitted through fluids. |
|  | Describe three scales used for measuring temperature. |
|  | Describe three ways heat is transferred. |
|  | Describe what a heat engine does. |
|  | Describe the structure of Earth’s atmosphere. |
|  | Explain the water cycle and its effect on weather patterns and climate. |
|  | Explain how land and water surfaces affect the overlaying air. |
|  | Describe how weather is associated with fronts and high- and low-pressure areas. |

**By the end of the Third Marking Period, each student will be able to:**

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|  | Distinguish between living and nonliving things. |
|  | Identify what living things need to survive. |
|  | Explain the system of binomial nomenclature. |
|  | Describe the development of the cell theory. |
|  | Identify names and functions of each part of a cell. |
|  | Compare tissues, organs and organ system. |
|  | Explain how virus makes copies of itself. |
|  | Identify the benefits of vaccines. |
|  | Identify places where life is found on Earth. |
|  | List factors that influence changes in population size. |
|  | Describe how organisms obtain energy for life. |

**By the end of the Fourth Marking Period, each student will be able to:**

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|  | Identify common abiotic factors in most ecosystems. |
|  | List the components of air that are needed for life. |
|  | Diagram the carbon cycle. |
|  | Recognize the role of nitrogen in life on Earth. |
|  | Explain how organisms produce energy-rich compounds. |
|  | Explain how ecosystems change over time. |
|  | Explain how climate influences land environments. |
|  | Identify seven biomes of Earth. |
|  | Compare flowing fresh water and standing fresh water ecosystem. |
|  | Identify and describe important salt-water ecosystem. |
|  | Identify problems that affect aquatic ecosystem. |

### First Marking Period:

**Unit of Study:** *Simple and Complex/Compound Machines*

**Mandated Text:** *New York Science Grade 6*

**Supplemental**

**Texts:** Reading Essentials Grade 6, *Concepts and Challenges in Life Science, Physical Science and Earth Science.*

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| **Time Period** Module | **Objectives**  **(Behaviors)** | **Activities**  **(Conditions)** | Standards **(Connections)** | **Learning Styles**  **(Approaches)** | **Kit Components** |
|  | Define science and identify its three main branches. | Students will define Science, and identify its three main branches. | **Standard 1- Analysis, Inquiry and Design**: Students will use mathematical analysis, scientific inquiry, and engineering design as appropriate, to pose questions, seek answers and develop solution. | a. **Kinesthetic/Tactual**: Students will make a Foldable and define and learn the vocabulary terms.  **Auditory**: Students will give an oral report on the definition of science, the three branches of science and technology.  **Visual**: Students will interpret the diagram of Figure 2 – How can new information affect an old explanation for something? (Page 7 on New York Science Grade 6) | **FOSS LEVERS AND PULLEYS** |
|  | a. Identify some skills scientist use.  **LAB** - b. Make a hypothesisto explain an observation. | a. Students will list the steps that a scientists might take when conducting an investigation.  b. Students will show through models that multiple explanations sometimes can apply to the same observations. | a. **Standard 1- Analysis, Inquiry and Design**: Students will use mathematical analysis, scientific inquiry, and engineering design as appropriate, to pose questions, seek answers and develop solution.  b. **Standard 6**-**Interconnectedness:** **Common Themes**: Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning. | a. **Kinesthetic/Tactual**: Students will make a Foldable and organize information on science skills, drawing conclusions and experiments.  **Auditory**: Students will explain what will the box sound and feel like if the student’s hypothesis was correct?  **Visual**: Students will interpret the diagram of the scientific investigation on Figure 8 (Page 12 on New York Science Grade 6).  b. **Kinesthetic/Tactual**: Students will construct a model of a tube with ropes based on hypothesis.  **Auditory**: Students will give an oral report of their experiment.  **Visual**: Students will make a sketch of their model based on hypothesis. | **FOSS**  **LEVERS AND PULLEYS** |
|  | a. Describe various types of models.  **LAB** – b. Identifying parts of an investigation. | a. Students will describe the three types of models and their uses.  b. Students will identify parts of an experiment. | a. **Standard 2-Information** **Systems**: Students will access, generate, process, and transfer information using appropriate technologies.  b. **Standard 1- Analysis, Inquiry and Design**: Students will use mathematical analysis, scientific inquiry, and engineering design as appropriate, to pose questions, seek answers and develop solution. | a. **Kinesthetic/Tactual**: Students will build a physical model of the solar system.  **Auditory**: Students will explain why models that have been proven to be wrong are still helpful?  **Visual**: Students will draw a model of their choice from physical, computer, and idea models.  b. **Kinesthetic/Tactual**:Students will set up the experiment.  **Auditory**: Students will give a report on the result of their experiment.  **Visual**: Students will graph the results of the experiment and draw appropriate conclusions. | **FOSS**  **LEVERS AND PULLEYS** |

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|  | Evaluate scientific explanations. | Students will create and record questions that they will use to evaluate a scientific investigation. | **Standard 1- Analysis, Inquiry and Design**: Students will use mathematical analysis, scientific inquiry, and engineering design as appropriate, to pose questions, seek answers and develop solution. | **Kinesthetic/Tactual**: Students will list the main ideas about how to evaluate scientific explanations.  **Auditory**: **Visual**: Students will think of an advertisement that they seen and did not believe in and explain why they did not believe the advertisement.  **Visual**: Students will make a specific data that shows multiple trials on their favorite foods. | **FOSS**  **LEVERS AND PULLEYS** |
|  | a.Distinguish between kinetic energy and potential energy  **LAB** - b. Identify energy transfers and transformation. | a. Students will compare and contrast kinetic energy and potential energy.  b. Students will track energy conversions from electrical energy to vibrations to sound. | a. **Standard 4-The Physical** **Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4-The Physical** **Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | a. **Kinesthetic/Tactual**: Students will make a Foldable and organize information about the nature of energy, the energy of position and the different forms of energy.  Auditory: Students will explain what stored chemical energy does their body use?  **Visual**: Students will identify and describe the object with the greatest and the least thermal energy.  b. **Kinesthetic/Tactual**: Students will observe and analyze the energy transfers and transformations on the simple act of listening to a radio on Figure 12 (Page 51 of New York Science Grade 6).  Auditory: Students will identify the form of energy produced by the radio or CD player.  **Visual**: Draw a diagram to show all of the energy transformations that took place during the implementation of the experiment. | **FOSS**  **LEVERS AND PULLEYS** |
|  | a. Identify how energy changes form.  **LAB** – b. Identify how energy is produced and delivered. | a. Students will identify what type of energy is being transformed as a biker rides a bicycle (page 30 of Reading Essentials Grade 6).  b. Students will investigate the types of energy they use in everyday activities. | a. **Standard 1- Analysis, Inquiry and Design**: Students will use mathematical analysis, scientific inquiry, and engineering design as appropriate, to pose questions, seek answers and develop solution.  b. **Standard 1- Analysis, Inquiry and Design**: Students will use mathematical analysis, scientific inquiry, and engineering design as appropriate, to pose questions, seek answers and develop solution. | a. **Kinesthetic/Tactual**: Students will make a Foldable to describe the law of conservation of energy and give examples.  **Auditory**: Students will identify what kind of energy travels through the air from a radio.  **Visual**: a. Students will imagine that they are taking a hot pan out of the oven using an oven mitt. Describe where thermal energy moves in this example through illustrations.  b. **Kinesthetic/Tactual**: Students will set up the experiment.  **Auditory**: Students will make a report on how energy is produced and delivered.  **Visual**: Students will create a plan for using renewable or inexhaustible sources. | **FOSS**  **LEVERS AND PULLEYS**  **GLENCOE** |

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|  | Explain what renewable, nonrenewable and alternative resources are. | Students will identify and write examples of renewable, nonrenewable and inexhaustible resources. | **Standard 4-The Physical** **Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will trace the flow of water into and out of the tidal power plant (Page 38 on Reading Essentials Grade 6)  **Auditory**: Students will give an oral discussion on nonrenewable resources, renewable resources and inexhaustible resources  **Visual**: Students will interpret an illustration of the geothermal power plant (Page 37 on Reading Essentials Grade 6). |  |
|  | a. Calculate how much work is done.  **LAB** - b. Compare the force needed to lift a block related to the distance it travels? | a. Students will complete the table with information on how work was done and in which direction the work was done (Page 44 of Reading Essentials Grade 6)  b. Students will investigate the mechanical advantage of a ramp. | a. **Standard 4-The Physical** **Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4**-The Physical Setting: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | a. **Kinesthetic/Tactual**: Students will make Flash Cards with two questions and the answers on each side of the flash card.  **Auditory**: Students will explain how work was done.  **Visual**: Students will identify which force in the Figure does the work (Page 42 on Reading Essential Grade 6).  b. **Kinesthetic/Tactual**:Students will make a model of the ramp.  **Auditory**: Students will give an oral report on the result of the experiment.  **Visual**: Students will interpret the graphs and charts on the work done using different ramps. | **FOSS LEVERS AND PULLEYS** |
|  | Explain how a machine makes work easier. | Students will describe how a machine can be useful. | **Standard 4-The Physical** **Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**:Students will organize information by making a foldable on how to make work easier.  **Auditory**: Students will describe and make an oral report on how the input force and output force of a machine work together to make work easier.  **Visual**: Students will identify which machines in Figure 5 work in the same way as those in Figure 6 (Page 82 New York Science Grade 6). | **FOSS**  **Simple and Complex Machines** |

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|  | a. Calculate the mechanical advantages and efficiency of a machine.  **LAB** - b. Design a pulley system. | a. Students will solve a one-step equation to calculate the mechanical advantage of a machine (page 83 of New York Science Grade 6).  b. Students will experiment with multiple pulley system. | a. **Stan**dard 4-The Physical Setting: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4**-**The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | a. **Kinesthetic/Tactual**: Students make a Foldable and organize information about machines, mechanical advantage and efficiency.    **Auditory**: Students will explain how friction reduces the efficiency of a machine.  **Visual**: Students will investigate how a car jack works and explain the process in an illustration.  b. **Kinesthetic/Tactual**: Students will experiment with multiple pulley system and design a pulley system.  **Auditory**: Students will explain how increasing the number of pulleys increases the mechanical advantage.  **Visual**: Students will draw a diagram of the design of the pulley system. | **FOSS**  **Simple and Complex Machines** |
|  | Distinguish among the different simple machines. | Students will match each simple machine with the correct description. | **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will make a Foldable and compare and contrast simple and compound machine.  **Auditory**: Students will explain how the mechanical advantage of a wheel and axle change as the size of the wheel increases.  **Visual**:Students will draw different types of simple machines. |  |

**Unit of Study:** *The Atmosphere, Hydrosphere and Atmosphere*

**Mandated Text:** *New York Science Grade 6*

**Supplemental**

**Texts:** Reading Essentials Grade 6 and *Concepts and Challenges in Life Science, Physical Science and Earth Science.*

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| **Time Period** Module | **Objectives**  **(Behaviors)** | **Activities**  **(Conditions)** | Standards **(Connections)** | **Learning Styles**  **(Approaches)** |  |
|  | Relate the three states of matter to the arrangement of particles within them. | Students will identify the three states of matter. | **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will make a foldable and will find and record the main ideas about solids, liquids and gases.  **Auditory**: Students will name the property that liquids and solids share.  **Visual**: Students will describe through pictures and drawings the arrangement and movement of the particles in gas. | **GLENCOE** |
|  | a. Define and compare thermal energy and temperature.  **LAB** - b. Measure the temperature of water as it heats. | a. Students will write the name of the process needed to make the change in states of matter.  b. Students will observe the solid and liquid states of matter. | **a. Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | a. **Kinesthetic/Tactual**: Students will make a foldable to compare and contrast thermal energy and temperature.  **Auditory**: Students will explain how a change in thermal energy causes matter to change from one state to another and give two examples.  **Visual**: Students will interpret a graph. (Page 61 on Reading Essentials Grade 6)  b. **Kinesthetic/Tactual**: Students will follow the step by step direction in the procedure part of the experiment.  **Auditory**: Students will describe how the temperature of the ice/water changed as the beaker was heated.  **Visual**: Students will graph the temperature and time data. | **GLENCOE**  **FOSS**  **Water and Weather Kit** |
|  | a. Describe how pressure is transmitted through fluids.  **LAB** - b. Design an experiment that uses Archimedes’ principle to determine the size of ship needed to carry a given amount of cargo in such a way that the top of the ship is even with the surface of the water. | a. Students will list ways pressure is transmitted through fluids  b. Students will apply Archimedes’ principle to shipbuilding | a. **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | a. **Kinesthetic/Tactual**: Students will organize information about Archimedes’ and Pascal’s principle.  **Auditory**: State Pascal’s principle in your own words.  **Visual**: Students will interpret the diagram on force pumps (Page 71 on Reading Essentials Grade 6)  b. **Kinesthetic/Tactual**: Students will design an experiment that uses Archimedes’ principle in ship building.  **Auditory**: Students will explain how the experimental results agreed or failed with the hypothesis.  **Visual**: Students will prepare and record observations in the data table. | **GLENCOE** |

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|  | a. Describe three scales used for measuring temperature.  **LAB** – b. Measure the temperature change of water at different temperatures. | Students will explain how Kelvin scale, Fahrenheit scale and Celsius scale are related.  b. Students will observe how the initial temperature of a liquid affects how quickly it warms or cool. | a. **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | a. **Kinesthetic/Tactual**: Students will draw the three scales used for measuring temperature.  **Auditory**: Students will explain how kinetic energy and thermal energy are related.  **Visual**: Students will point out the liquid that indicates the temperature of the thermometer and explain what temperature the thermometer show.  b. **Kinesthetic/Tactual**: Students will follow the step by step direction in the procedure part of the experiment.  **Auditory**: Students will discuss the results of the experiment.  **Visual**: Students will make a graph and plot and label the lines for all five beakers in one graph. | | **GLENCOE / FOSS WEATHER AND WATER** | |
|  | a. Describe three ways heat is transferred.  **LAB** - b. Design an experiment to test the Hypothesis and collect data that can be graphed. | a. Students will list different ways of heat transfer.  b. Students will design an experiment to determine which type of beverage containers best insulate hot drinks. | a. **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | | a. **Kinesthetic/Tactual**: Students will make a model of heat transfer through drawings.  **Auditory**: Students will discuss why materials such as plastic foam, feathers and fur are poor conductors of heat.  **Visual**: Students will collect pictures showing conduction, convection and radiation.  b. **Kinesthetic/Tactual**: Students will follow the step by step direction in the procedure part of the experiment.  **Auditory**: Students will explain why the rate of temperature change varies among the containers.  **Visual**: Students will make a graph and interpret the data. | **GLENCOE** |
|  | a. Describe what a heat engine does.  **LAB** – b. Compare the effectiveness of different sunscreen brands for protection against the Sun. | a. Students will organize information on how an internal combustion works.  b. Students will evaluate the effectiveness of various sunscreens. | a. **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | | a. **Kinesthetic/Tactual**: Students will draw the four-stroke cycle.  **Auditory**: Students will discuss why diesel engines don’t use spark plugs.  **Visual**: Students will interpret and analyze the diagram on Figure 14 – What must happen to the coolant before it can transfer the heat it has absorbed in the air (Page 150 on New York Science Grade 6).  b. **Kinesthetic/Tactual**: Students will calculate the cost per millimeter of each sunscreen brand.  **Auditory**: Students will discuss which among the different types of sunscreen is considered to be the best buy in terms of the cost, effectiveness and brand.  **Visual**: Students will make a data table and analyze the graph. | **GLENCOE** |
|  | a. Describe the structure of Earth’s atmosphere.  **LAB** – b. Observe how heat release affects the air above soil and above water. | a. Students will list the layers of the atmosphere in order.  b. Students will observe how water and soil differ in their abilities to absorb and release heat. | a. **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | | a. **Kinesthetic/Tactual**: Students will draw Figure 2- circle graph of the percentages of gases (Page 163 on New York Science Grade 6).  **Auditory**: Students will explain why different layers of Earth’s atmosphere have different layer.  **Visual**: Students will interpret the diagram, Figure 8 –temperature of the atmosphere at various altitude (Page 167 on New York Science Grade 6)  b. **Kinesthetic/Tactual**: Students will list the steps needed to test the hypothesis.  **Auditory**: Students will present the results of the experiment.  **Visual**: Students will design a data tables and make a line graph. | **GLENCOE** |
|  | Explain the water cycle and its effect on weather patterns and climate. | Students will fill in the cycle map to show the water cycle. | **Standard 4-The Physical Setting**: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | | **Kinesthetic/Tactual**: Students will make a model of the water cycle.  **Auditory**: Students will explain the process of the water cycle.  **Visual**: Students will make a poster of the water cycle. | **FOSS**  **WEATHER AND WATER** |

**Unit of Study:** *Biodiversity*

**Mandated Text:** *New York Science Grade 6*

**Supplemental**

### Texts: Reading Essentials Grade 6 and *Concepts and Challenges in Life Science, Physical Science and Earth Science.*

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| **Time Period** Module | **Objectives**  **(Behaviors)** | **Activities**  **(Conditions)** | Standards **(Connections)** | **Learning Styles**  **(Approaches)** |  |
|  | Distinguish between living and nonliving things. | Students will describe the features that all organisms have in common. | **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will complete the concept map to show what all living things have in common.  **Auditory**: Students will explain why homeostasis is important to organisms.  **Visual**: Students will collect pictures on the growth and development of living things. | **FOSS POPULATIONS AND ECOSYSTEMS** |
|  | a. Identify what living things need to survive.  **LAB** – b. Compare and contrast an animal and a plant cell. | a. Students will list and explain the things that living things need to survive.  b. Students will identify and compare the parts of a plant and animal cell. | a. **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.    b. **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | a. **Kinesthetic/Tactual**: Students will draw a picture of the things that living things need: a place to live, water, and food sources.  **Auditory**: Students will discuss the purpose of reproduction.  **Visual**: Students will complete a graphic organizer on the things that living things need: a place to live, water, and food sources.  b. **Kinesthetic/Tactual**: Students will draw the Elodea cell and label its parts.  **Auditory**: Students will discuss and explain the differences between plant and animal cells.  **Visual:** Students willcompare and contrast the shape of the cheek cell and the elodea cell. | **FOSS POPULATIONS AND ECOSYSTEMS** |

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|  | | Describe the development of the cell theory. | | Students will summarize Rudolf Virchow’s contribution to the cell theory. | **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will make flash cards and write each vocabulary word or term.  **Auditory**: Students will discuss how the invention of the microscope changes the scientists’ view of the world.  **Visual**: Students will describe Rudolf Virchow’s contribution to the cell theory. | **FOSS POPULATIONS AND ECOSYSTEMS** |
|  | | Identify names and functions of each part of a cell. | | Students will label the parts and functions of a plant and animal cell. | **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will make a two-tab book then write the features of prokaryotic and eukaryotic cells.  **Auditory**: Students will explain the functions of lignin.  **Visual**: Students will circle the structures that are in a plant cell but not in an animal cell. |
|  | Explain how virus makes copies of itself. | | Students will write a sentence that describes how a virus can enter a host cell. | | **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will make a model of the active viruses.  **Auditory**: Students will make a report on the form and functions of viruses.  **Visual**: Students will make a concept map outlining the steps of viral infection and replication. |  |
|  | a. Identify the benefits of vaccines.  **LAB** – b. Design an experiment to investigate how a change in one environmental factor affects in any way the size of a fruit population. | | a. Students will explain how vaccines prevent infection.  b. Students will test the effect of a change in one environmental factor on the rate of growth of a fruit fly population. | | a. **Standard 4**-The Living Environment: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4**-**The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | a. **Kinesthetic/Tactual**: Students will draw/make a model of Figure 18 (Page 241 on New York Science Grade 6)  **Auditory**: Students will make a report on how a virus can reach a host cell.  **Visual**: Students will analyze table 3-HIV/AIDS in the world (Page 243 on New York Science Grade 6).  b. **Kinesthetic/Tactual**: Students will set up the experiment and follow the procedures.  **Auditory**: Students will explain whether or not the results support the hypothesis.  **Visual**: Students will make a data table and record the measurements of fruit fly populations. | **FOSS POPULATIONS AND ECOSYSTEMS** |
|  | Identify places where life is found on Earth. | | Students will complete the illustration in the diagram to help them understand how scientists organize the living organisms on Earth. | | **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will make a two-tab concept map Foldable and list facts about the living factors and the nonliving factors that help an organism survive in its habitat.  **Auditory**: Students will explain how a community is different from an ecosystem.  **Visual**: Students will identify the two different populations shown in the community figure-Figure 3(Page 256 on New York Science Grade 6). | **FOSS POPULATIONS AND ECOSYSTEMS** |

**Unit of Study:** *Interdependence*

**Mandated Text:** *New York Science Grade 6*

**Supplemental**

**Texts:** Reading Essentials Grade 6 and *Concepts and Science in Life Science, Physical Science and Earth Science.*

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| **Time Period** Module | **Objectives**  **(Behaviors)** | **Activities**  **(Conditions)** | Standards **(Connections)** | **Learning Styles**  **(Approaches)** |  |
|  | Identify common abiotic factors in most ecosystems. | Students will name and describe common abiotic factors in most ecosystems. | **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will make a clay model of Figure 3-botto0m of deep ocean (Page 286 on New York Science Grade 6).  **Auditory**: Students will discuss why soil is considered an abiotic factor and biotic factor.  **Visual**: Students will analyze and interpret the graph for temperature changes (Page 287 on New York Science Grade 6). | **FOSS POPULATIONS AND**  **ECOSYSTEMS** |
|  | a. List the components of air that are needed for life.  **LAB** – b. Observe the formation of humus. | a. Student will make a pie graph to show the components of air.  b. Students will observe the humus over several weeks. | a. **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | a. **Kinesthetic/Tactual**: Students will make a model of the components of air.  **Auditory**: Students will discuss the environmental factors.  **Visual**: Students will make a poster of photosynthesis.  b. **Kinesthetic/Tactual**:Students will set up the experiment.  **Auditory**: Students will describe what happened during the investigation.  **Visual**: Students will observe humus formation and record their observations. |
|  | Diagram the carbon cycle. | Students will list the steps of the carbon cycle in the chart. | **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will make a model of the carbon cycle.  **Auditory**: Students will give an oral report of the carbon cycle.  **Visual**: Students will make their own diagram of the carbon cycle. | **FOSS POPULATIONS AND ECOSYSTEMS** |
|  | a. Recognize the role of nitrogen in life on Earth.  **LAB** – b. Analyze the data to determine whether the mass gained by the plants equals the mass lost by the soil. | a. Students will list the steps of the nitrogen cycle in the chart.  b. Students will perform a variation of Johannes Baptista Van Helmont’s famous experiment to determine if plants get their mass from soil. | a. **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4**-**The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | a. **Kinesthetic/Tactual**: Students will make a model of the nitrogen cycle.  **Auditory**: Students will give an oral report of the nitrogen cycle.  **Visual** Students will make their own diagram of the nitrogen cycle.  b. **Kinesthetic/Tactual**: Students will set up the experiment and follow the step by step direction in the procedures.  **Auditory**: Students will discuss the results of the experiment.  **Visual**: Students will make a data table and interpret the results. | **FOSS POPULATIONS AND ECOSYSTEMS** |
|  | Explain how organisms produce energy-rich compounds. | Students will place the pictures of the organisms in the order of steps in which they would appear in a food chain. | **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**:Students will make a two-tab Foldable to compare how producers use photosynthesis and chemosynthesis to convert energy.  **Auditory**: Students will explain why there are more producers than consumers?  **Visual**: Students will analyze the picture in Figure 15-Food Chain (Page 299 on New York Science Grade 6. What might happen if the grizzly bear disappeared from this ecosystem? |
|  | a. Explain how ecosystems change over time.  **LAB** – b. Analyze the relationships among organisms and their environments. | a. Students will show the sequence of events in Ecological Succession.  b. Students will conduct a study of an ecosystem and determine how the living things interact with each other and the environment. | a. **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4**-**The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | a. **Kinesthetic/Tactual**: Students will make a Foldable to compare and contrast pioneer species and climax communities.  **Auditory**: Students will give an oral report on the ecological succession.  **Visual**: Students will make an outline of the stages in secondary succession and fill in any stages that aren’t shown.  b. **Kinesthetic/Tactual**: Students will choose a portion of the ecosystem to study and make a map of the area of study.  **Auditory**: Students will explain how a new population of organisms might affect the ecosystem.  **Visual**: Students will make a data table and record their observations. | **FOSS POPULATIONS AND ECOSYSTEMS** |
|  | Explain how climate influences land environments. | Students will write two sentences that explain the difference between temperate deciduous forest and temperate rain forests. | **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will make a Foldable to describe how climates influences land environments.  **Auditory**: Students will describe one geologic area of their choice including the climate, the landforms and t\he kinds of plants and animals that live there.  **Visual**: Students will draw the geologic area of their choice including the climate, the landforms and the kinds of plants and animals that live there. | **FOSS POPULATIONS AND ECOSYSTEMS** |
|  | a. Identify seven biomes of Earth.  **LAB** – b. Identify wetland regions in the United States. | a. Students will compare and contrast the seven biomes of the world.  b. Students will use internet sites to identify wetland regions in the United States. | a. **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.  b. **Standard 4**-**The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | a. **Kinesthetic/Tactual**: Students will make a pocket Foldable to describe the characteristics of each type of biome.  **Auditory**: Students will explain why logging can be harmful to temperate rain forests.  **Visual**: Students will locate the names of continents on Figure 5 on which deserts are found (Page 316 on New Science Grade 6).  b. **Kinesthetic/Tactual**: Students will follow the step by step procedure of the plan.  **Auditory**: Students will describe the significance of the wetland regions.  **Visual**: Students will describe the wetland region that they have researched including its illustrations. |
|  | Compare flowing fresh water and standing fresh water ecosystem. | Students will compare and contrast rivers and streams and lake ponds and wetlands. | **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will make a layered-look book and write descriptions of the aquatic (rivers, streams, lakes, ponds and wetlands) ecosystems under each lap.  **Auditory**: Students will make an oral report on the difference between a wetland and an estuary.  **Visual**: Students will show the difference between a lake and a pond through drawings. | **FOSS POPULATIONS AND ECOSYSTEMS** |
|  | Identify and describe important salt-water ecosystem. | Students will describe different salt water ecosystem. | **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will make a Foldable to describe the salt water ecosystem.  **Auditory**: Students will discuss the three things that organisms that live in intertidal zones are adapted to in order to survive.  **Visual**: Students will make and label a circle graph to show the percentage of Earth’s salt water and the percentage that is fresh water. |
|  | Identify problems that affect aquatic ecosystems. | Students will list problems that affect aquatic ecosystems. | **Standard 4-The Living Environment**: Students will understand and apply concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. | **Kinesthetic/Tactual**: Students will make a Foldable to identify problems that affect aquatic ecosystem.  **Auditory**: Students will explain why fewer plants are at the bottom of deep lakes.  **Visual**: Students will locate Australia on a globe then identify the location of the Great Barrier Reef. |  |

Portfolio Checklist First Unit

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| Three Homework Samples | | **Dates of Homework** |
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| Performance Measure | | **Dates of Tasks** |
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Portfolio Checklist **First Marking Period: September 8, 2009 – November 19, 2009**

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Portfolio Checklist **Second Unit**

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| Three Homework Samples | | **Dates of Homework** |
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| Performance Measure | | **Dates of Tasks** |
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Portfolio Checklist **Third Unit**

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Portfolio Checklist **Fourth Unit**

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| Three Homework Samples | | **Dates of Homework** |
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| Performance Measure | | **Dates of Tasks** |
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Portfolio Checklist **Third Marking Period: February 1, 2010 – April 14, 2010**

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| Assessment | | **Dates of Mastery** |
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Portfolio Checklist **Alternatives**

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| Three Homework Samples | | **Dates of Homework** |
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| Performance Measure | | **Dates of Tasks** |
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Portfolio Checklist

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| Assessment | | **Dates of Mastery** |
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